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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,886	09/30/2003	Christian Leth Petersen	00900.0302-US-C1	6811

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EXAMINER	
VAZQUEZ, ARLEEN M	
ART UNIT	**PAPER NUMBER**
2829	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/675,886	PETERSEN ET AL.	
	Examiner	Art Unit	
	Arleen M. Vazquez	2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *65,66,69,70,72-83,87-91,94-121 and 140* is/are pending in the application.

4a) Of the above claim(s) *122-130* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *65,66,69,70,72-83,87-91,94-121 and 140* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09/30/2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "first surface", "a distal portion", "said conductive probe arms in coplanar relationship with said first surface of said supporting body", "an insulating spacing", "a first conductive layer positioned on said multitude of conductive probe arms" and "a second conductive layer acting as said electrodes" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 65,66,69,70,72-83,87-91 and 140 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 65 and 66 recite the limitation of "distal portion". It is not clear in the original disclosure where this "distal portion" is located or what comprises the "distal portion". Therefore this limitation is considered as new matter.

The limitation of "distal portion" will not be given patentably weight until clarification of the 112 rejection.

Claim Objections

4. Claims 65-66,69,72-83,87-91,94-121 and 140 are objected to because of the following informalities:

In claims 65,66,69,73,94 and 96 a "coplanar relationship between the conductive probe arms with said first surface of said supporting body" is recited. It appears the relationship between the conductive probe arms and the first surface of the supporting body is *parallel* instead of coplanar. The definition for coplanar in Webster's Dictionary is "Laying or occurring in same plane". It appears by looking the figures these elements are not in the same plane but are in a "parallel relationship".

Claim 94, it can be interpreted that "a second multitude of conductive guarding electrodes" and "a second conductive layer acting as said electrodes" are the same elements or two different elements, ~~because~~ if applicant intend to claim that they are the same, the applicant is required to clearly state so. Is the second conducive layer forming the second multitude of conductive guarding electrodes?

Claims 72,74-83,87-91,95,97-121 and 140 ~~previously~~ depend from claims 65,66,94 ~~and~~ 96 are objected to for the same reasons.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

6. Claims 65-66,69-70,72-76,82-83,91,94-107 and 140 are rejected under 35 U.S.C. 102(b) as being anticipated by ***Luthi et al. (US 4,329,642).***

As to claims 65,66 and 140, ***Luthi et al.*** discloses in Figures 2 -8 a multi-point probe for testing electric properties on a specific location (38) of a test sample (36) comprising a supporting body (40) defining a first surface (top surface of 40), a first multitude of conductive probe arms (at least two of 44 or 46), each of said conductive probe arms (at least two of 44 or 46) defining a proximal end (end of at least two of 44 or 46 on top surface of body 40) and a distal portion (portion of at least two of 44 or 46 between the border of body 40 and contact portions 45 and 47) and a distal end (45,47) being positioned in coplanar relationship with said first surface (top surface of 40) of said supporting body (40) along substantially the entire length of said conductive probe arms (at least two of 44 or 46), and said conductive probe arms (at least two of 44 or 46) being movable in x, y, or z planes/all spatial directions (Col. 3 lns 43-46) and being connected to said supporting body (40) at said proximal ends (end of at least two of 44 or 46 on top surface of body 40) thereof and having said distal ends (45,47) freely extending and away (are extending to central cavity 42) from said supporting body (40), leaving said distal portions (portion of at least two of 44 or 46 between the border of body 40 and contact portions 45 and 47) and ends (45,47) free (on central cavity 42) to contact a sample (36) unsupported by said supporting body (40), giving individually flexible motion (Col. 3 lns 43-46) to said first multitude of conductive probe arms (at least two of 44 or 46) for allowing said distal end (45,47) to contact (Col. 3 lns 15-19) said specific location (38) of said test sample (36), said conductive probe arms (at least

two of 44 or 46) freely extending from said supporting body (40) in coplanar relationship with said first surface (top surface of 40) of said supporting body (40) along substantially the entire length of said conductive probe arms (44,46), and a second multitude of conductive guarding electrodes (48), being positioned on second multitude of areas (underneath areas where 48 are located) defined on said first surface (top surface of 40) between said first multitude of conductive probe arms (at least two of 44 or 46), and comprising an insulating spacing (space between the at least two of 44 or 46 and 48) between said electrodes (48) and said conductive probe arms (at least two of 44 or 46), said second multitude of conductive electrodes (48) for active guarding (maintains separation between the at least two conductive arms 44 or 46) and extending along side said first multitude of probe arms (at least two of 44 or 46) only up to their distal portions, so that said second electrodes (48) are shorter (as shown in Fig 3) than said first probe arms (at least two of 44 or 46) and said distal portions and ends of said first probe arms (at least two of 44 or 46) are free to contact the test sample/surfaces (36/38), wherein said second multitude of areas (underneath areas where 48 are located) are undercut (as shown in Fig 4) in relation to the plane of said first surface (top surface of 40) of said supporting body (40).

As to claims 94 and 95, ***Luthi et al.*** discloses in Figures 2 -8 a multi-point probe for testing electric properties on a specific location (38) of a test sample (36) comprising a supporting body (40) defining a first surface (top surface of 40), a first multitude of conductive probe arms (44,46), each of said conductive probe arms (44,46) defining a proximal end (end of 44 and 46 on top surface of body 40) and a distal end (45,47)

being positioned in coplanar relationship with said first surface (top surface of 40) of said supporting body (40) along substantially the entire length of said conductive probe arms (44,46), and said conductive probe arms (44,46) being connected to said supporting body (40) at said proximal ends (end of 44 and 46 on top surface of body 40) thereof and having said distal ends (45,47) freely extending (are extending to central cavity 42) from said supporting body (40), giving individually flexible motion (Col. 3 lns 43-46) to said first multitude of conductive probe arms (44,46) for allowing said distal end (45,47) to contact (Col. 3 lns 15-19) said specific location (38) of said test sample (36), said conductive probe arms (44,46) freely extending from said supporting body (40) in coplanar relationship with said first surface (top surface of 40) of said supporting body (40) along substantially the entire length of said conductive probe arms (44,46), and a second multitude of conductive guarding electrodes (48) being positioned on second multitude of areas (underneath areas where 48 are located) defined on said first surface (top surface of 40) between said first multitude of conductive probe arms (44,46), and comprising an insulating spacing (space between 44,46 and 48) between said electrodes (48) and said conductive probe arms (44,46), said second multitude of conductive electrodes (48) for active guarding (maintains separation between conductive arms 44 and 46), said first probe arms (44,46) extending beyond (as shown in Fig 3) said second guarding electrodes (48), so that said second guarding electrodes (48) are shorter than said first probe arms (44,46) and their distal ends (45,47) are free to contact the test sample (36); a first conductive layer made of copper material (70 of Fig. 6 Col. 3 lns 56-58) positioned on said multitude of conductive probe arms (44,46)

and a second conductive layer (layer which forms electrodes 48) acting as said electrodes (48) on said supporting body (40) between said first multitude of conductive probe arms (44,46).

As to claim 96, ***Luthi et al.*** discloses in Figures 2 -8 a multi-point probe for testing electric properties on a specific location (38) of a test sample (36) comprising a supporting body (40) defining a first surface (top surface of 40), a first multitude of conductive probe arms (44,46), each of said conductive probe arms (44,46) defining a proximal end (end of 44 and 46 on top surface of body 40) and a distal end (45,47) being positioned in coplanar relationship with said first surface (top surface of 40) of said supporting body 940) along substantially the entire length of said conductive probe arms (44,46), and said conductive probe arms (44,46) being connected to said supporting body (40) at said proximal ends (end of 44 and 46 on top surface of body 40) thereof and having said distal ends (45,47) freely extending (are extending to central cavity 42) from said supporting body (40), giving individually flexible motion (Col. 3 lns 43-46) to said first multitude of conductive probe arms (44,46) for allowing said distal end (45,47) to contact (Col. 3 lns 15-19) said specific location (38) of said test sample (36), said conductive probe arms (44,46) freely extending from said supporting body (40), leaving said distal ends (45,47)free to contact (Col. 3 lns 15-19) a sample (36) unsupported by said supporting body (40) and in coplanar relationship with said first surface (top surface of 40) of said supporting body (40) along substantially the entire length of said conductive probe arms (44,46), and a second multitude of conductive guarding electrodes (48) being positioned on second multitude of areas (underneath

areas where 48 are located) defined on said first surface (top surface of 40) between said first multitude of conductive probe arms (44,46), and comprising an insulating spacing (space between 44,46 and 48) between said electrodes (48) and said conductive probe arms (44,46), said second multitude of conductive electrodes (48) for active guarding (maintains separation between conductive arms 44 and 46), a third multitude of conductive tip elements (72,74) extending from said distal end (45,47) of said first multitude of conductive probe arms (44,46), said first probe arms (44,46) extending beyond (as shown in Fig 3) said second guarding electrodes (48), so that said second guarding electrodes (48) are shorter than said first probe arms (44,46) and their distal ends (45,47) are free to contact (Col. 3 lns 15-19) the test sample (36).

As to claims 69 and 70, ***Luthi et al.*** discloses in Figures 2 –8 said second multitude of areas (underneath areas where 48 are located) are combinations of undercut and coplanar (as shown in Fig.3) in relation to the plane of said first surface (top surface of 40) of said supporting body (40) and provide a supporting surface of said supporting body (40) smaller than the surface of said conductive probe arms (44,46) facing said supporting body (40).

As to claim 72, ***Luthi et al.*** discloses in Figures 2 –8 said first multitude of conductive probe arms (at least two of 44 or 46) are unidirectional (can be in any direction), constituting a first multitude of parallel free extensions (45,47) of said supporting body (40).

As to claim 73, ***Luthi et al.*** discloses in Figures 2 –8 said supporting body further comprises a second surface (bottom surface of 40) parallel to said first surface (top

surface of 40), and said multi-point probe further comprises an additional multitude of conductive probe arms (every other at least two conductive probe arms 44 or 46 different from the previously chosen) defining a proximal end (end of the additional multitude of conductive probe arms 44 or 46 on top surface of body 40) and a distal end (45,47) being positioned in coplanar relationship with said second surface of said supporting body (40), and said additional conductive probe arms being connected to said supporting body (40) at said proximal ends (end of the additional multitude of conductive probe arms 44 or 46 on top surface of body 40) thereof and having said distal ends (45,47) freely extending (extending to central cavity 42) from said supporting body (40), giving individually flexible motion (Col. 3 lns 43-46) to said additional multitude of conductive probe arms.

As to claims 74 and 75, ***Luthi et al.*** discloses in Figures 2 –8 said first multitude of conductive probe arms (at least two of 44 or 46) are in a multiple of 2 ranging from at least 2 to 16 conductive probe arms.

As to claim 76, ***Luthi et al.*** discloses in Figures 2 –8 said first multitude of conductive probe arms (at least two of 44 or 46) have a substantially rectangular cross section (as shown in Fig 3) with dimensions of width, depth and length.

As to claims 82 and 83, ***Luthi et al.*** discloses in Figures 2 –8 said first multitude of conductive probe arms (at least two of 44 or 46) have tapered/pointed elements (74) extending from said distal end (45,47) of said conductive probe arms.

As to claim 91, ***Luthi et al.*** discloses in Figures 2 –8 said supporting body 940) is of a ceramic material (Col. 3 lns 23-26).

As to claim 97, ***Luthi et al.*** discloses in Figures 2 –8 wherein each of said third multitude of conductive tip elements (72,74) comprises a primary section (72) and a secondary section (74), said conductive tip elements being connected to said conductive probe arms (44,46) through respective primary sections (72) thereof and secondary sections 974) defining free contacting ends (as shown in Fig. 8).

As to claims 98-100, ***Luthi et al.*** discloses in Figures 2 –8 each of said primary sections (72) defines a first axial direction, said first axial direction constituting an increase of separation between said supporting body (40) and said free contacting ends (74) and constitutes a decrease of separation between said free contacting ends (74) of said third multitude of conductive tip elements.

As to claims 101-103, ***Luthi et al.*** discloses in Figures 2 –8 each of said secondary sections (74) defines a second axial direction, said second axial direction constituting an increase of separation between said supporting body (40) and said free contacting ends (end of 74) and constitutes a decrease of separation between said free contacting ends (end of 74) of said third multitude of conductive tip elements.

As to claims 104-105, ***Luthi et al.*** discloses in Figures 2 –8 said first axial direction of said primary sections (72) extends parallel (as shown in Fig 3) to the plane defined by said first surface (top surface of 40) of said supporting body (40).

As to claims 106-107, ***Luthi et al.*** discloses in Figures 2 –8 said second axial direction of said secondary sections (74) extends parallel (as shown in Fig 3) to the plane defined by said second surface (bottom surface of 40) of said supporting body (40).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 77-81,87-90 and 108-119 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Luthi et al. (US 4,329,642).***

As to claims 77-81,87-90 and 112-119, ***Luthi et al.*** discloses the claimed invention except for ratio of said length to said width within ranges of 500:1 to 5:1 and 50:1 to 10:1, ratio of said width to said depth within range of 20:1 to 2:1 and 10:1, first multitude of conductive probe arms have said lengths in the range of 20 μm to 2mm or 200 μm, first multitude of conductive probe arms have a separation of distal ends of said conductive probe arms in the range of 1μm to 1 mm or 20 μm to 60 1μm, conductive tip elements have a separation of said free contacting ends in the range of 1nm to 100 nm, 2nm to 50 nm and 5nm to 20nm, conductive tip elements define an overall length in the range of 100 nm to 100 μm, 500 nm to 50 μm and 1μm to 10 μm and conductive tip elements defines a diameter in the range of 10 μm to 1 μm and 50 nm to 500 nm. It would have been obvious for one ordinary skill in the art at the time the invention was made to have all these possible ranges for the conductive tip elements, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

As to claims 108-111, ***Luthi et al.*** discloses the claimed invention except for the number of conductive tip elements in said third multitude is equal to, less than or greater than the number of conductive probe arms in said first multitude and that also the third multitude is divisible by 2. It would have been an obvious matter of design choice to have different number of conductive tip elements than the number of conductive probe arms since the applicant has not discloses that these different numbers of conductive tip elements solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with equal number of conductive tip elements per number of conductive probe arms as shown by ***Luthi et al.*** .

9. Claims 120 and 121 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Luthi et al. (US 4,329,642)*** in view of ***Doris et al. (US 5,383,354)***.

As to claims 120 and 121, ***Luthi et al.*** discloses everything above except for the conductive tip elements consist primarily of carbon and further includes a concentration of contaminants. However, ***Doris et al.*** discloses in Figure 3 conductive tip elements consist primarily of carbon and further includes a concentration of contaminants.

It would have been obvious for one ordinary skill in the art at the time the invention was made to modify ***Luthi et al.*** teachings by having a tip made of carbon as taught by ***Doris et al.*** in order to allow better contact between the tip and the specimen to be tested.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Robillard et al. (US 3,984,620) discloses an "Integrated circuit chip test and assembly package".

Long et al. (6,496,026) discloses a "Method of manufacturing and testing an electronic device using a contact device having fingers and a mechanical ground".

Oldfield (US 5,734,176) discloses an "Impedance controlled test fixture for multi-lead surface mounted integrated circuits".

Wollitzer (US 7,042,236) discloses a "measuring probe for measuring high frequencies".

Response to Arguments

11. Applicant's arguments, see page 2 of Remarks, filed 10/23/2006, with respect to Burr et al. (US 5,565,788) have been fully considered and are persuasive. The Non Final rejection of 05/18/2006 has been withdrawn.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arleen M. Vazquez whose telephone number is 571-272-2619. The examiner can normally be reached on Monday to Friday, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ha Nguyen can be reached on 571-272-1678. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMV

HA TRAN NGUYEN
SUPERVISORY PATENT EXAMINER